

# Sound, 3<sup>rd</sup> grade

## Argument and explanation

**Focal concepts that serve as the basis for explanations and for claims in arguments:**

- A. Sound can pass through solids, liquids, and gases (air)
- B. Vibrating objects cause sounds
- C. Sound causes objects to vibrate
- D. Higher frequency of vibration causes higher pitch --OR-- shorter length causes higher pitch

### Lessons

Lesson	Focal concepts that serve as the basis for explanations and for claims in arguments
1-2	A. Sound can pass through solids, liquids and gases (air)
1-2	B. Vibrating objects cause sounds
8	C. Sound causes objects to vibrate
3-5	D. Higher frequency of vibration causes higher pitch --OR-- shorter length causes higher pitch

## Engineering

### Lessons

Lesson	
15-16	Perhaps modify by adding necessary design specifications, such as producing a specified pitch or note. The class could play a song as an orchestra (e.g., <i>Mary Had a Little Lamb</i> consists of only four different notes) with different students assigned different notes to play with their instruments.
Possible addition	Transmitting information across a distance, such as with “telephones” made of string and cups (Note, however, that this relates to a NGSS standard not currently in WA State Standards)

# Circuits and Pathways, 4<sup>th</sup> grade

## Argument and explanation

### Focal concepts that serve as the basis for explanations and for claims in arguments:

- A. Some materials, called conductors, allow electric current to flow through them; other materials, called non-conductors, do not allow electric current to flow through them.
- B. In an electric circuit, potential (chemical) energy in the battery is transformed into electrical and other forms of kinetic energy (light, heat, motion, and sound).
- C. An electric circuit must form a complete or closed loop to function

### Lessons

Lesson	Focal concepts that serve as the basis for explanations and for claims in arguments
5	A. Some materials, called conductors, allow electric current to flow through them; other materials, called non-conductors, do not allow electric current to flow through them.
6-7	B. In an electric circuit, potential (chemical) energy in the battery is transformed into electrical and kinetic energy (light, heat, motion, and sound).
3, 7, 11	C. An electric circuit must form a complete or closed loop to function

## Engineering

### Lessons

Lesson	
6-7 (with major change)	Create a circuit to transform chemical potential energy in battery to another form of energy to solve a problem or accomplish a goal

# Land & Water, 5<sup>th</sup> grade

## Argument and explanation

**Focal concepts that serve as the basis for explanations and for claims in arguments:**

- A. Flowing water reshapes land through erosion and deposition
- B. The greater the slope of the land, the faster the water flows, causing more erosion and deposition
- C. Vegetation or other ground cover can slow the rate of water flow and secure soil particles, decreasing the amount of erosion

### Lessons

Lesson	Focal concepts that serve as the basis for explanations and for claims in arguments
3-4	A. Flowing water reshapes land through erosion and deposition
13, 7, 10	B. The greater the slope of the land, the faster the water flows, causing more erosion and deposition
14	C. Vegetation or other ground cover can slow the rate of water flow and secure soil particles, decreasing the amount of erosion

## Engineering

### Lessons

Lesson	
14	Design a solution to mitigate erosion on school grounds, using the stream table model for iterative testing and design modification
12	Design a dam to provide a solution to a problem